

This listing of claims will replace all prior versions, and listings, of claims in the application.

In the Claims:

1-17. CANCELED.

18. (CURRENTLY AMENDED) A radiation sensor comprising:

a support comprising silicon and/or GaAs and/or a semiconductor material;

a cavity which may be a recess or a through hole formed in one surface of the support;

a dielectric membrane provided on the one surface of the support;

a radiation sensor element formed above the cavity;

electric terminals for the sensor element, characterised in that:

the cavity in the surface of the support has a round or oval contour;

the side wall of the cavity is essentially orthogonal to the support surface;

the cavity is formed through dry etching; and

an etching stop layer is formed on the one surface of the support between the one surface of the support and the dielectric membrane.

19. (PREVIOUSLY PRESENTED) A radiation sensor according to claim 18, characterised in that the support has a rectangular and particularly a square contour.

20. (PREVIOUSLY PRESENTED) A radiation sensor according to claim 19, characterised in that one or more electric terminals are provided in a corner section of the sensor.

21. (PREVIOUSLY PRESENTED) A radiation sensor according to claim 18, characterised in that the sensor element is a thermopile.

22. (PREVIOUSLY PRESENTED) A radiation sensor according to claim 18, characterised in that a plurality of sensor elements are formed above one cavity.

23. (PREVIOUSLY PRESENTED) A radiation sensor according to claim 18, characterised by one or more of the following features:

the membrane material comprises silica and/or silicon nitride; and
the etching stop layer contains an oxide, particularly silica.

24. (PREVIOUSLY PRESENTED) A radiation sensor according to claim 18, characterised by one or more of the following dimensions:

support height H: more than 50 μm , preferably more than 200 μm , less than 1,500 μm , preferably less than 600 μm ;

support edge length L: less than 2 mm, preferably less than 1.5 mm;

cavity diameter D: more than 55%, preferably more than 65% and/or less than 90%, preferably less than 80% of the support edge length; and

membrane thickness D: less than 3 μm , preferably more than 0.1 μm .

25. (PREVIOUSLY PRESENTED) A wafer comprising a plurality of blanks for radiation sensors according to claim 18 formed on it, characterised in that the plurality of blanks are arranged on the support in a rectangular, rhombic, triangular or hexagonal grid.

26. (PREVIOUSLY PRESENTED) A sensor array comprising a plurality of radiation sensors according to claim 18.

27. (PREVIOUSLY PRESENTED) A sensor array according to claim 26, characterised in that a plurality of radiation sensors are arranged in two or more rows and in two or more columns.

28. (PREVIOUSLY PRESENTED) A sensor module comprising:

- a radiation sensor according to claim 18;
- a housing in which the radiation sensor is accommodated;
- an optical window in the housing; and
- electric terminals protruding from the housing, said electric terminals being connected to the terminals.

29. (PREVIOUSLY PRESENTED) A sensor module according to claim 28, characterised by an optical projection element, particularly a lens or a mirror.

30. (WITHDRAWN) A method for manufacturing a radiation sensor comprising the steps:

production of a plane wafer;

application of an etching stop layer on a first surface of the wafer and formation of a mechanically stable membrane on top of it;

application of an etching mask having one or more openings with oval or round contours on the second surface of the wafer; and

dry etching of cavities in the wafer from the second surface in the direction towards the etching stop layer such that the side wall of the cavity is rectangular to the support surface.

31. (PREVIOUSLY PRESENTED) A sensor module comprising:

a sensor array according to claim 26;

a housing in which the sensor array is accommodated;

an optical window in the housing; and

electric terminals protruding from the housing, said electric terminals being connected to the terminals.

32. (PREVIOUSLY PRESENTED) A sensor module according to claim 31, characterised by an optical projection element, particularly a lens or a mirror.